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MONTHLY REPORT

ON

THE PROGRESS OF THERAPEUTICS.

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BY

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REPORT ON THE PROGRESS OF THERAPEUTICS.

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Apomorphia.—Under the guidance of Prof. Kohler, Max Quehl has performed a series of experiments with this drug. The following are some of his conclusions:—It affects neither the motor nor the sensory nerves. There is no evidence of any influence upon the vaso-motor nerves, nor of any paralyzing influence upon the reflex action of the sensory nerves upon the vaso-motor centre through the spinal cord. Quehl regards apomorphia in small doses as the best and least dangerous of all emetics. In the discussion on Quehl's paper at the Leipsic Society of Natural Science, Reigel stated that he had seen vomiting induced by apomorphia after section of the vagus. He considers that the vomiting is due to the action of the drug on the central nervous system, for after a series of sections of the spinal cord he at length arrived at a plane, after which no vomiting occurred.—*Med. Chir. Rundschau*, Heft 2, 1874. The experiments which M. David performed with apomorphia are recorded in the *Comptes Rendus*, August 24, 1874. He found that a solution of from half to two milligrammes subcutaneously injected produced vomiting in a dog in four or six minutes, preceded by very slight nausea. Vomiting in man was produced by from three to four milligrammes. There was slight uneasiness and vertigo before emesis was produced. The vomiting came on suddenly, and was renewed three or four times; recovery soon followed. M. David found that apomorphia produces in certain animals, as cats, pigeons, rabbits, rats, and guinea-pigs, a special excitement, which he attributes to a specific action on the nervous centres.

Atropia as an Antidote to Poisonous Mushrooms.—Dr T. Lauder Brunton has a very interesting paper on this subject in the *Brit. Med. Journal* for 14th Nov. 1874. He says that one of the

most perfect instances of antagonism with which we are acquainted is the power of atropia to counteract the poisonous principle of mushrooms. The active principle of the *Agaricus muscarius* or *Amanita muscaria* was separated by Prof. Schmiedeberg of Strasburg, and named by him muscarin. The merest trace of this alkaloid will arrest the pulsations of the frog's heart almost instantaneously; but if a minute quantity of atropia be brought into contact with the organ it will begin to pulsate again. A little atropia at once counteracts the effects of muscarin on the heart in mammals, just as it does in the frog. Brunton discovered that muscarin causes contraction of the pulmonary vessels, and so gives rise to the intense dyspnœa so characteristic of this poison. The dyspnœa, as well as the other symptoms of poisoning, disappear almost immediately after the injection of atropia.

In cases of poisoning by mushrooms, the stomach should be emptied first; and it is curious that in such cases tickling the fauces is much more efficacious in producing vomiting than the administration of tartar emetic. The antidote may be given by the mouth, either in the form of tincture of belladonna or liquor atropia; but Schmiedeberg and Koppe prefer subcutaneous injection, on account of the more rapid absorption and speedy action of the drug, as well as the more accurate adjustment of the dose. The dose for subcutaneous injection should be about one-hundredth of a grain, or about one minim of the liquor atropiæ sulphatis (B.P.), repeated, if necessary, until the dyspnœa is relieved.

Boldo.—This drug, which has recently attracted much attention, was first described in 1782 by Molina as Peumus boldus N.O. Monimiaceæ. The leaves are the part used, on account of the aromatic oil which they contain. The drug has not yet been used in this country, but in France it has been experimented with by Dujardin-Beaumetz and Claude Verne. It has been found to act as a stimulant to digestion, and it exerts a powerful influence on the liver.

The leaves when fresh are green, but change on drying to a reddish brown; they are opposite, entire, and oval; they have an aromatic taste and odour, are coriaceous in texture, and are covered on their surface with small glands.

Boldo is indigenous to the New World, and has not been met with outside Chili. It would be beyond the scope of this "Report" to enter into a lengthened description of this plant, but full particulars are given in M. Verne's exhaustive essay—a summary of which appears in the *Pharmaceutical Journal* for 21st Nov. 1874.

The most abundant product yielded by the plant is the essential oil, as much as two per cent. having been obtained. An alkaloid termed *boldine* has also been discovered by M. Verne in connexion with M. Bourgoin. In the Hôtel Dieu and Hôtel Boujon various preparations of boldo have been tried, such as the alcoholic extract,

the aqueous extract, the essential oil, tincture, wine, and syrup. The cases in which it has been chiefly employed are those of atony of various organs, when the patients could not tolerate quinine. Beaumetz commences the administration of boldo with fifty centigrammes of an alcoholic tincture made by macerating 100 grains of the bruised leaves in 500 grains of 60° alcohol and filtering. This dose may be increased to two grains daily, but large doses produce vomiting.

On the Elimination of Chlorates.—M. Rabuteau concludes from his experiments that chlorates of potash and soda, which have penetrated by absorption into the blood, are eliminated by the kidneys without undergoing any decomposition.—*Gaz. Med. de Paris*, 28th Nov. 1874.

The Physiological Action of the Chinoline and Pyridine Bases.—The *Medical Times and Gazette*, 28th Nov. 1874, contains a very interesting paper on this subject by Drs John M'Kendrick and James Dewar of Edinburgh. Quinine, cinchonine, or strychnine, yield, when distilled with caustic potash, two homologous series of bases, named the pyridine and chinoline series. Bases isomeric with these may also be obtained by the destructive distillation of coal, or from Dippel's oil, got from bone. Greville Williams has pointed out that chinoline obtained from coal-tar differs in some respects from that yielded by cinchonine.

The following are the general conclusions arrived at by the authors:—

1. There is a marked gradation in the extent of physiological action of the members of the pyridine series of bases, but it remains of the same kind. The lethal dose becomes reduced as we rise from the lower to the higher.

2. The higher members of the pyridine series resemble in physiological action the lower members of the chinoline series, except (1) that the former are more liable to cause death by asphyxia, and (2) that the lethal dose of the pyridines is less than one-half that of the chinolines.

3. In proceeding from the lower to the higher members of the chinoline series, the physiological action changes in character, inasmuch as the lower members appear to act chiefly on the sensory centres of the encephalon and the reflex centres of the cord, destroying the power of voluntary or reflex movement; while the higher act less on these centres, and chiefly on the motor centres, first as irritants, causing violent convulsions, and at length producing complete paralysis. At the same time, while the reflex activity of the centres in the spinal cord appear to be inactive, they may be readily roused to action by strychnine.

4. On comparing the action of such compounds of C_9H_7N (chinoline) with $C_9H_{13}N$ (parvoline, etc.), or $C_8H_{11}N$ (collidine)

with $C_8H_{15}N$ (conia from hemlock), or $C_{10}H_{10}N_2$ (dipyridine) with $C_{10}H_{14}N_2$ (nicotine from tobacco), it is to be observed that the physiological activity of the substance is, apart from chemical structure, greatest in those bases containing the larger amount of hydrogen.

5. Those artificial bases which approximate the percentage composition of natural bases are much weaker physiologically, so far as can be estimated by amount of dose, than the natural bases, but the *kind* of action is the same in both cases.

6. When the bases of the pyridine series are doubled by condensation, producing dipyridine, parapicoline, etc., they not only become more active physiologically, but the action differs in kind from that of the simple bases, and resembles the action of natural bases or alkaloids, having a similar chemical constitution.

7. All the substances examined in this research are remarkable for not possessing any specific paralytic action on the heart likely to cause syncope; but they destroy life either by exhaustive convulsions or by gradual paralysis of the centres of respiration, thus causing asphyxia.

8. There is no appreciable immediate action on the sympathetic system of nerves. There is probably a secondary action, because after large doses the vaso-motor centre, in common with the other centres, becomes involved.

9. There is no difference, so far as could be discovered, between the physiological action of bases obtained from cinchonine and those derived from tar.

Toxic Action of Flowers of Colchicum Autumnale.—M. Pierre has recently made a communication on this subject to the Académie de Médecine. He remarked that the fully expanded flowers will stain the skin a livid greenish yellow colour, like that of a corpse in a state of incipient decomposition. He is of opinion that it is principally during the period of fecundation that the colchicum possesses this property, and he attributes it to an extremely volatile substance which has not yet been studied. In certain localities where saffron is largely cultivated, labourers employed in plucking the flowers not unfrequently suffer from symptoms of poisoning, and present a peculiar swollen and bloated appearance. M. Pierre's communication is given in a recent number of the *Comptes Rendus*.

Croton-Chloral.—The *Journal de Pharmacie et de Chimie*, vol. xx. p. 278, contains a communication by Dr R. Engel on this substance. Croton-chloral, or trichlorocrotonic aldehyd, $C_4H_3Cl_3O$, was first obtained by Krämer and Pinner by passing a stream of chlorine into aldehyd for twenty-four hours.

Anhydrous croton-chloral is a colourless oleaginous liquid, insoluble in water, but combining with it to form a hydrate which

crystallizes in white nacreous spangles. The hydrate is more soluble in warm than in cold water, and is very soluble in alcohol; it is more soluble in glycerine than in water. According to Liebreich, croton-chloral acts as an hypnotic; but, unlike chloral, its use is not followed by lowering of pulse and respiration. Under the influence of caustic potash, croton-chloral breaks up into allyl-chloroform and formiate of potash; but allyl-chloroform being very unstable, rapidly decomposes into hydrochloric acid and bichlorallylene. It is to this latter substance that Liebreich attributes the action of croton-chloral. He asserts that while trichlorinated substances, as chloroform and chloral, act on the brain, spinal cord, and heart, the bichlorinated substances, as bichloride of ethylene and bichlorallylene, act only on the brain and spinal cord. In cases of facial neuralgia, Liebreich has employed the croton-chloral with great success, the pain often ceasing before production of sleep. Croton-chloral acts as a hypnotic in doses of from half to one gram.

Croton-Chloral Hydrate in Megrim.—Professor Sydney Ringer has a paper on this subject in the *British Medical Journal*, 21st Nov. 1874. The pain of megrim is situated in the fifth nerve, and remembering how closely allied megrim is to facial neuralgia, he has employed it in the former affection with satisfactory results. In those cases which are accompanied by severe vomiting and retching, croton-chloral is useless, being speedily rejected. Professor Ringer writes—"It seems to me that in many instances two kinds of headache coexist, one sometimes predominating, sometimes the other. One appears due to affection of the cutaneous nerves, and is generally accompanied by tenderness. Patients describe the other as a 'stupid headache,' 'a feeling of bewilderment,' 'a bewildering headache.' After dispersion of the first form by croton-chloral, the stupid headache often continues, but may ordinarily be relieved by bromide of potassium. Indeed, in many cases I have found it useful to combine these remedies."

Goa Powder.—In a paper in the *Medical Times and Gazette*, 24th Oct. 1874, Dr Fayrer draws attention to this remedy for Indian ringworm. A few grains of the powder are dissolved in vinegar or lemon-juice to about the consistency of cream, and this is painted over the eruption and for some little distance beyond its margin on the sound skin. It causes no pain at first, but in a few hours there is a dull, heavy sensation, as though the skin had been bruised, the eruption becoming white, whilst the surrounding skin is stained a dark brown. The sense of uneasiness soon passes away, the integument re-assumes its natural character, and all traces of the disease disappear. According to Mr D. S. Kemp (*Pharm. Jl.* 1864) orchella weed (lichen orcella) exported from the coast of Africa, north of Mozambique, to India, is the most probable source of Goa powder.

Dr Fayrer concludes—"Whatever it may be, there can be no doubt of its efficacy in the treatment of the skin diseases I have alluded to, and I should think most probably it might be useful in others also. I venture therefore to commend it to the notice of dermatologists, and to hope that it may be imported into this country, and that its efficacy may be further tested in the treatment of skin diseases."

In the *Medical Times and Gazette*, 14th Nov. 1874, Mr George Gaskoin also writes on the subject of Goa powder. The preparation which he employs he obtains from Mr Garrad of Leamington; it bears the Government stamp of the Bombay Presidency, and is sold by Messrs Kemp and Co. of Bombay and Poonah. Mr Gaskoin states that, on the whole, his experience is such as not to lead him to praise the drug. He says that it gives an ugly brown stain, which is followed by an amount of inflammation which equals that from the coarsest remedies.

The Physiological Action of Salicylic Acid.—The *Archiv der Pharmacie*, vol. v. p. 445, gives Prof. Kolbe's researches. The fact that salicylic acid could be easily prepared from carbolic acid and carbonic anhydride, and that it could be again decomposed by heat into the same bodies, led Prof. Kolbe to think that it might prevent fermentative and putrefactive processes, and act as an antiseptic. Many experiments have proved that salicylic acid does act powerfully as an antiseptic. Prof. Thiersch found that, as a powder alone, or mixed with starch, it will destroy the fœtid odour of cancerous surfaces, etc., without giving rise to inflammation. A solution of 1 part of the acid and 3 parts of sodium phosphate in 50 parts of water promotes the healing of granulating surfaces.

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